

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
23 June 2005 (23.06.2005)

PCT

(10) International Publication Number
WO 2005/056812 A2

- (51) International Patent Classification⁷: **C12Q**
- (21) International Application Number:
PCT/US2004/040565
- (22) International Filing Date: 3 December 2004 (03.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/527,513 5 December 2003 (05.12.2003) US
- (71) Applicant (for all designated States except US): ZYMES, INC. [US/US]; 452 Albany Court, Goleta, California 93117 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): LIPSHUTZ, Bruce H. [US/US]; 452 Albany Court, Goleta, California 93117 (US). BERL, Volker [DE/FR]; 2, Rond Point de l'Esplanade, 67000 Strasbourg (FR). SCHEIN, Karin [DE/DE]; Krongasse 17, 67065 Kudwigshafen (DE). WETTERICH, Frank [DE/DE]; Hans-Willmann-Str. 11, 67157 Wachenheim (DE).
- (74) Agents: ESKER, Todd, W. et al.; Morgan Lewis & Bockius LLP, 2 Palo Alto Square, Suite 700, 3000 El Camino Real, Palo Alto, California 94306 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PRACTICAL, COST-EFFECTIVE SYNTHESIS OF UBIQUINONES

(57) Abstract: The present invention provides a convergent method for the synthesis of ubiquinones and ubiquinones analogues. Also provided are precursors of ubiquinones and their analogues that are useful in the methods of the invention. The invention further provides an improved method for the acetylation of alkyl enolates.



WO 2005/056812 A2